



LAB MANUAL 05

LAB TASKS

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Q 01 Convert the following while loop to a do-while loop:

```
int x=1;
while(x>0){
    cout<<"enter a number: ";
    cin>>x;
}
```

CODE:

```
#include<iostream>
using namespace std;
int main() {
    int x;
    do
    {
        cout<<"Enter a number: ";
        cin>>x;
    }
    while(x>0);
    return 0;
}
```

```
Enter a number: 5
Enter a number: 3
Enter a number: 23
Enter a number: 53
Enter a number: 543
Enter a number: 43
Enter a number: 42
Enter a number: 323
Enter a number: 54
Enter a number: 6556
Enter a number: 676878
Enter a number: 78
Enter a number: 765
Enter a number: 65
Enter a number: 434
Enter a number: 34_
```

Q 02 Use a do while loop to make a simple calculator for two numbers. Insert buttons for it to ask again and for termination.

CODE:

```
#include<iostream>
```

```
#include<math.h>
```

```
using namespace std;
```

```
int main() {
```

```
    char oper,repeat=0;
```

```
    int num1,num2,result;
```

```
    do
```

```
    {
```

```
        cout<<"Enter the first number: "<<endl;
```

```
        cin>>num1;
```

```
    cout<<"Enter the operator(+,-,*,/,%,^,%(remainder)):  
"<<endl;
```

```
    cin>>oper;
```

```
    cout<<"Enter the second number: "<<endl;
```

```
    cin>>num2;
```

```
    switch(oper){
```

```
        case '+':
```

```
            result=num1+num2;
```

```
            break;
```

```
        case '-':
```

```
            result=num1-num2;
```

```
            break;
```

```
        case '*':
```

```
            result=num1*num2;
```

```
            break;
```

```
        case '/':
```

```
            result=num1/num2;
```

```
            break;
```

```
        case '%':
```

```
            result=num1%num2;
```

```
            break;
```

```
        case '^':
```

```
        result=pow(num1,num2);
        break;

        case 'r':
        result=fmod(num1,num2);
        break;
        default:
            cout<<"Invalid operator!";
            break;
    }

    cout<<"The answer is: "<<result<<endl;

    cout<<"want to continue?(press 'y' ) ";
    cin>>repeat;
}

while(repeat=='y');
{
}

return 0;
}
```

```

Enter the first number:
2345
Enter the operator(+,-,*,/,%,^,r(remainder)):
^
Enter the second number:
2
The answer is: 5499025
want to continue?(press 'y' ) y
Enter the first number:
234
Enter the operator(+,-,*,/,%,^,r(remainder)):
+
Enter the second number:
16
The answer is: 250
want to continue?(press 'y' ) _

```

Q 03 Write programs with while or do while loops that compute:

- The sum of all even numbers between 2 and 100 (inclusive).
- The sum of all squares between 1 and 100 (inclusive).

a)CODE:

```

#include<iostream>

using namespace std;

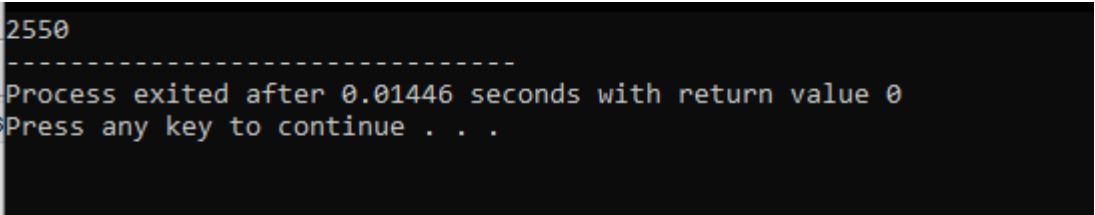
int main() {
    int sum,NUM=0;
    int n=0;
    while(n<=100)
    {
        sum=n+NUM;
        NUM=sum;
    }
}

```

```

        n=n+2;
    }
    cout<<sum<<" ";
    return 0;
}

```



```

2550
-----
Process exited after 0.01446 seconds with return value 0
Press any key to continue . . .

```

b)CODE:

```

#include<iostream>
using namespace std;
int main() {
    int num,sum;
    int n=1;
    while(n<=100){
        num=n*n;
        sum+=num;
        n++;
    }
    cout<<"The sum of all squares between 1 and 100 is:
"<<sum;
    return 0;
}

```

```
}
```

```
The sum of all squares between 1 and 100 is: 338350
-----
Process exited after 0.0698 seconds with return value 0
Press any key to continue . . .
```

Q 04 Write programs with while or do while loops that compute:

- All powers of 2 from 2^0 up to 2^{20} .
- The sum of all odd numbers between a and b (inclusive), where a and b are inputs.

a)CODE:

```
#include<iostream>

#include<math.h>

using namespace std;

int main() {

    double num=2,result;

    int n=0;

    while(n<=20){

        result=pow(num,n);

        cout<<"2^"<<n<<" = "<<result<<endl;

        n++;

    }
```



```
        return 0;
    }
```

```
2^0 = 1
2^1 = 2
2^2 = 4
2^3 = 8
2^4 = 16
2^5 = 32
2^6 = 64
2^7 = 128
2^8 = 256
2^9 = 512
2^10 = 1024
2^11 = 2048
2^12 = 4096
2^13 = 8192
2^14 = 16384
2^15 = 32768
2^16 = 65536
2^17 = 131072
2^18 = 262144
2^19 = 524288
2^20 = 1.04858e+006

-----
Process exited after 0.08452 seconds with return value 0
Press any key to continue . . .
```

b)CODE:

```
#include<iostream>

using namespace std;

int main() {
    int a,b,num=0,sum;
    cout<<"Enter the starting odd number: ";
    cin>>a;
    cout<<"Enter the ending odd number: ";
    cin>>b;
```

```
int n=a;
while(n<=b)
{
    sum=n+num;
    num=sum;
    n=n+2;

}

cout<<sum<<endl;
return 0;
}
```

```
Enter the starting odd number: 1
Enter the ending odd number: 99
2500

-----
Process exited after 10.55 seconds with return value 0
Press any key to continue . . .
```